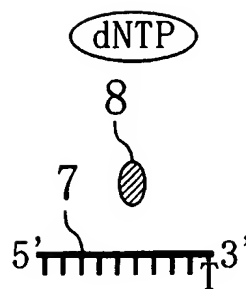
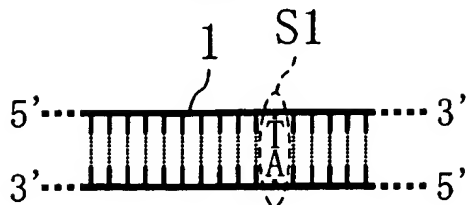
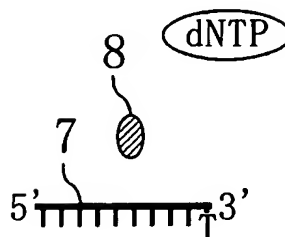
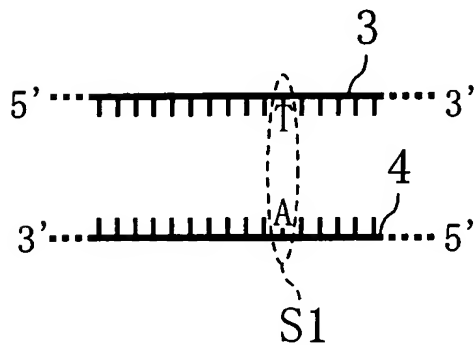




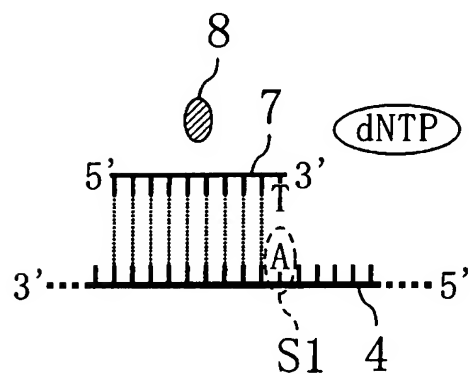
(a)



(b)



(c)



(d)

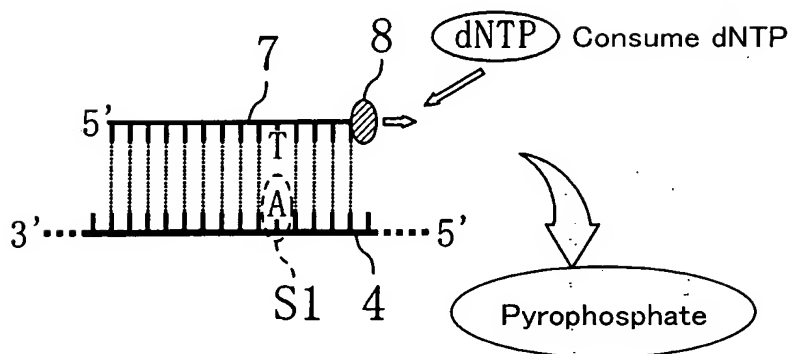
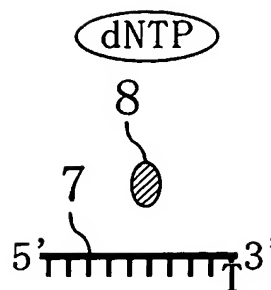
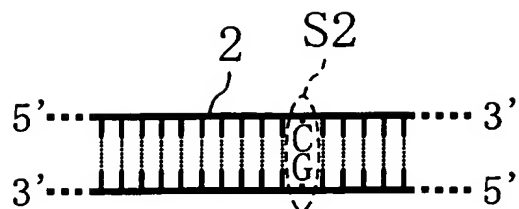
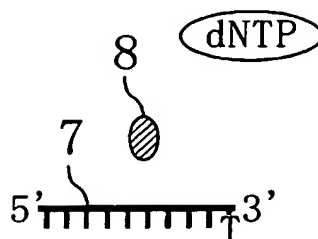
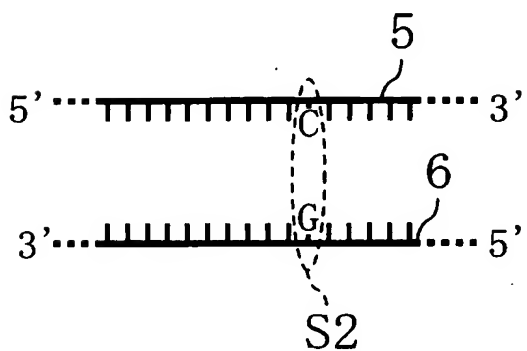


Fig. 1

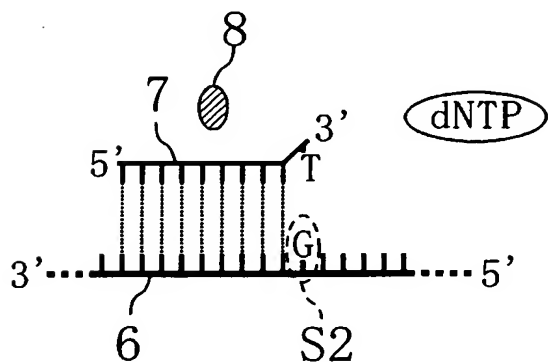
(a)



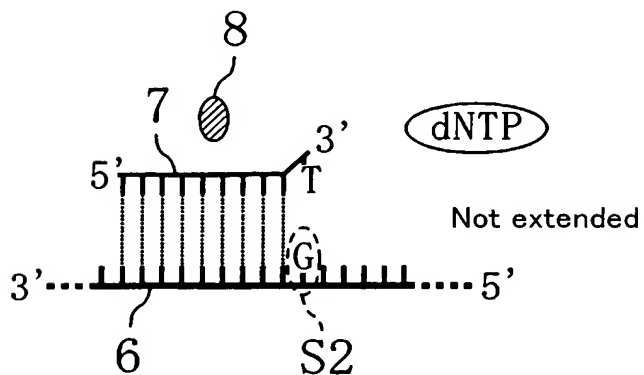
(b)



(c)



(d)



Not extended

**Fig. 2**

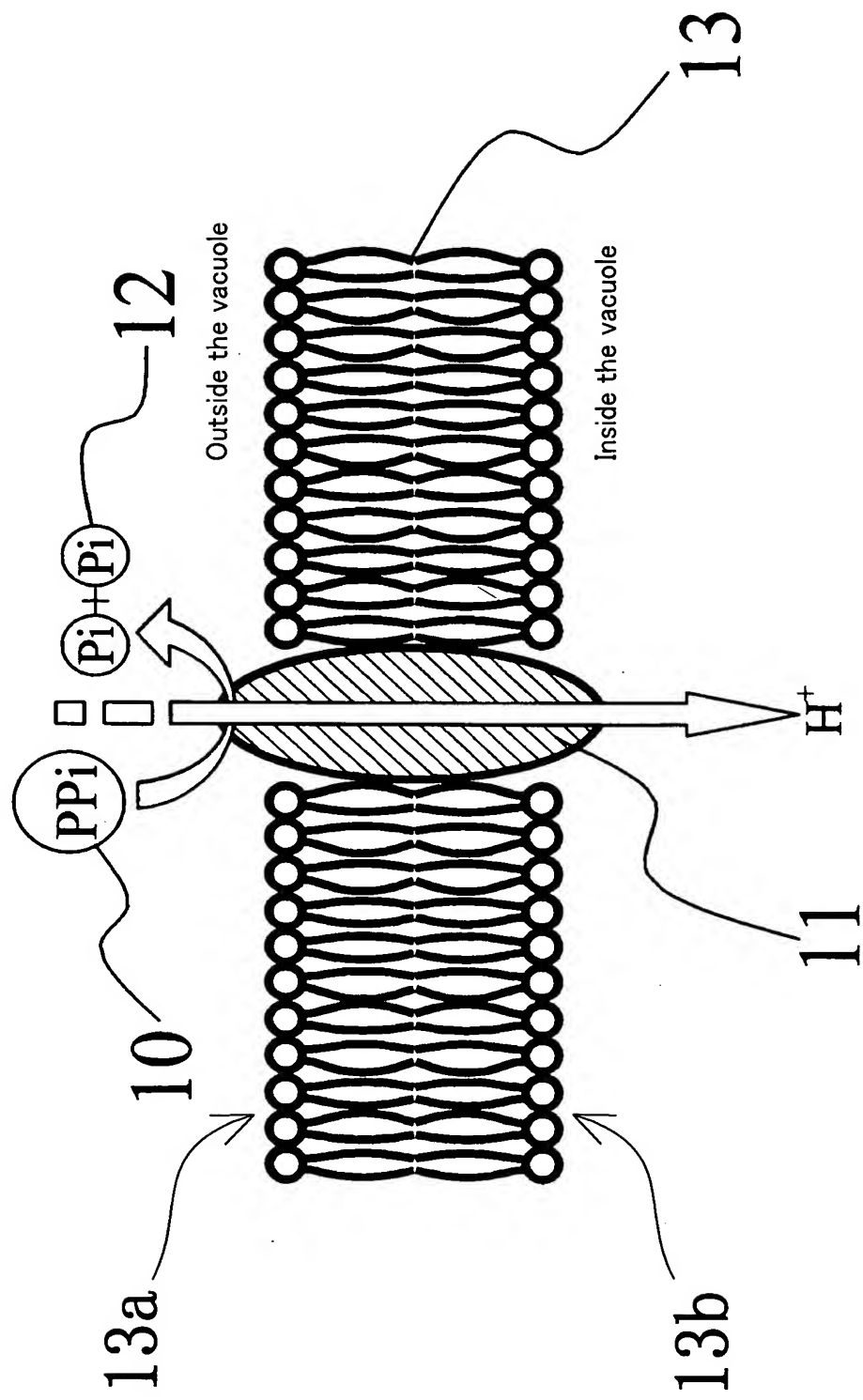


Fig. 3

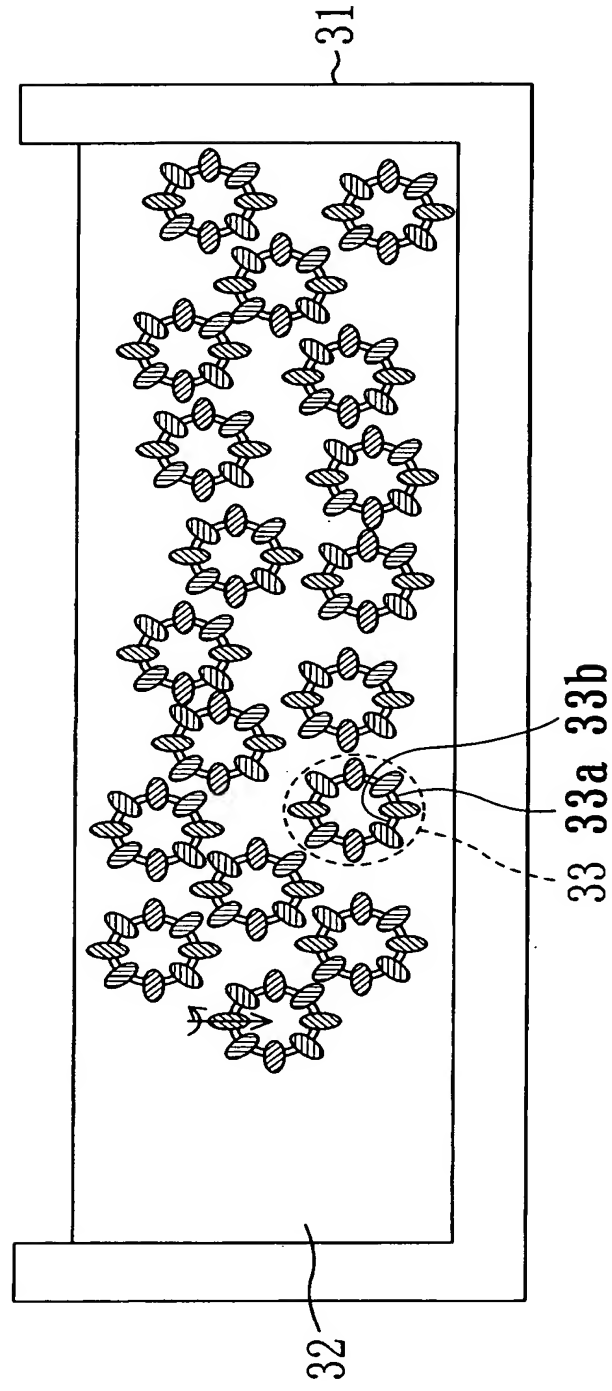


Fig. 4

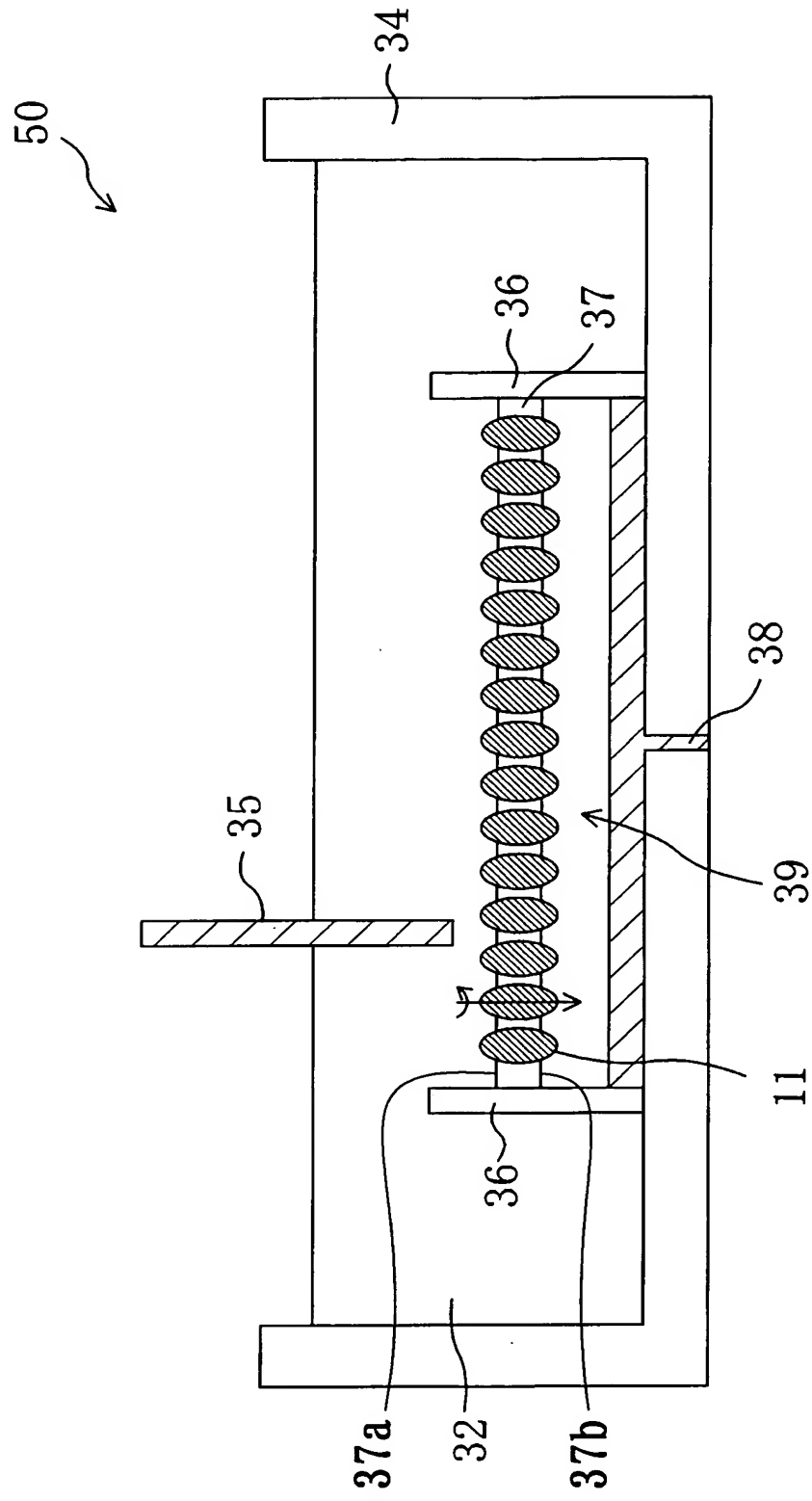


Fig. 5

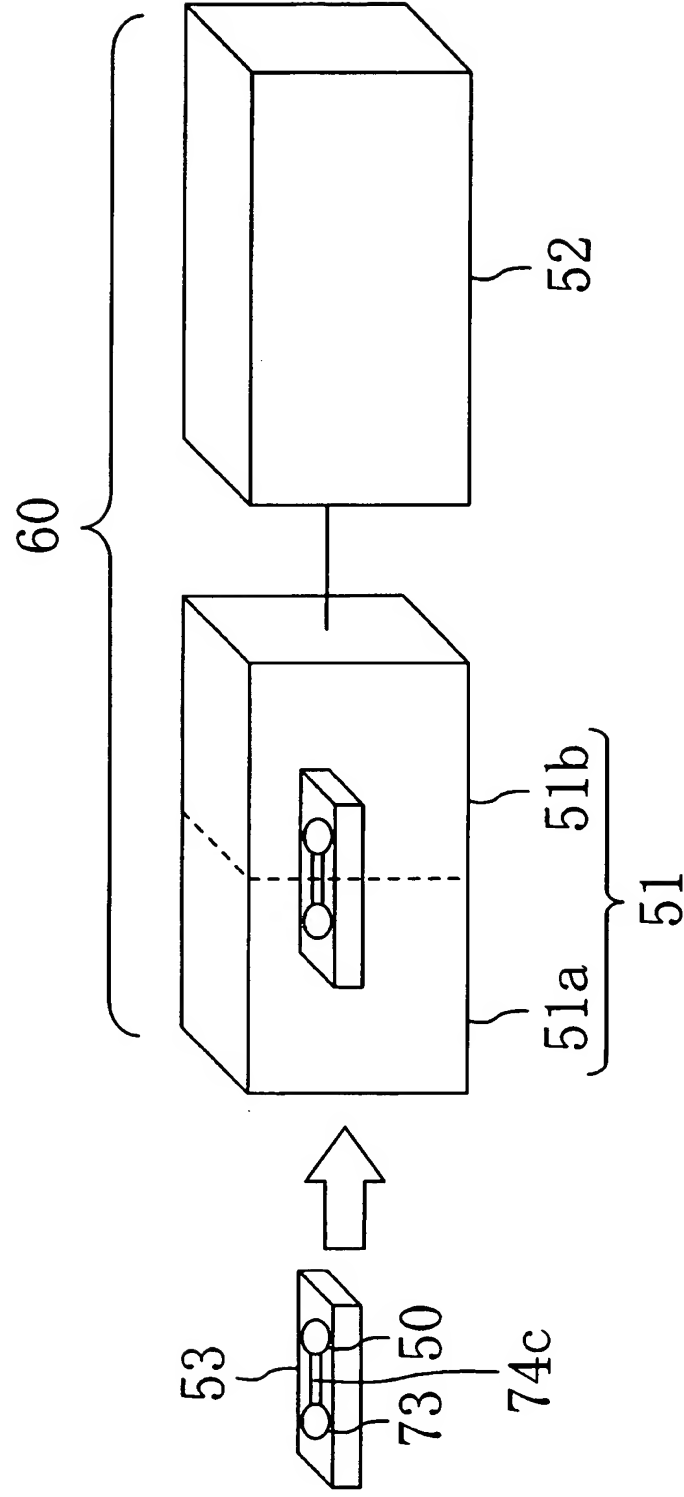
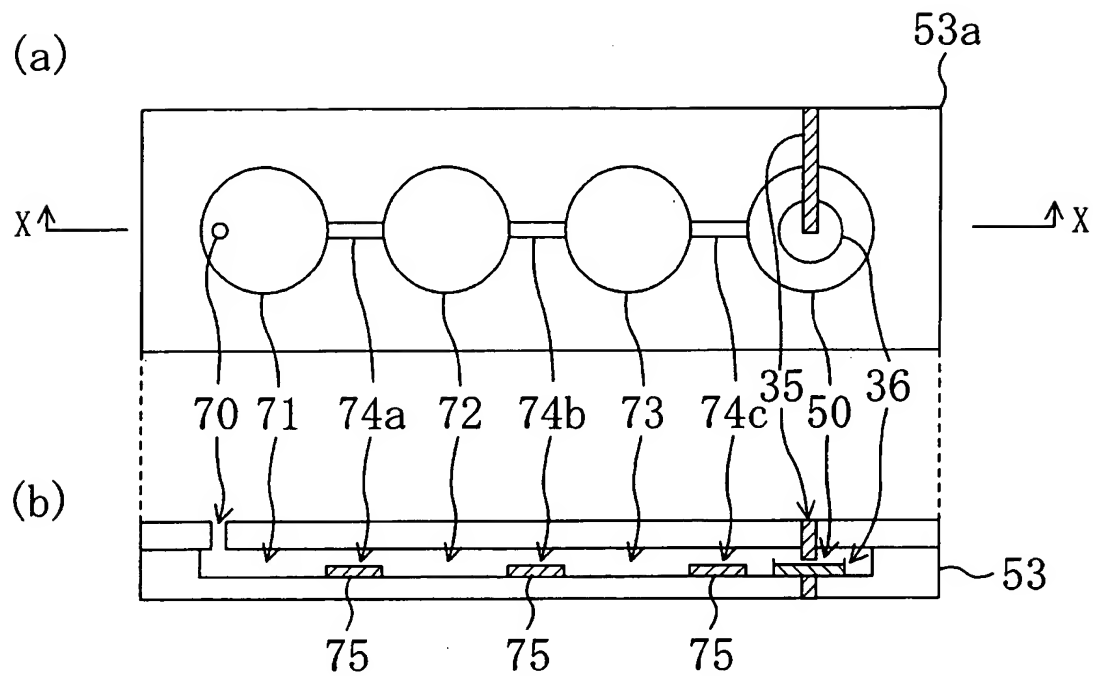
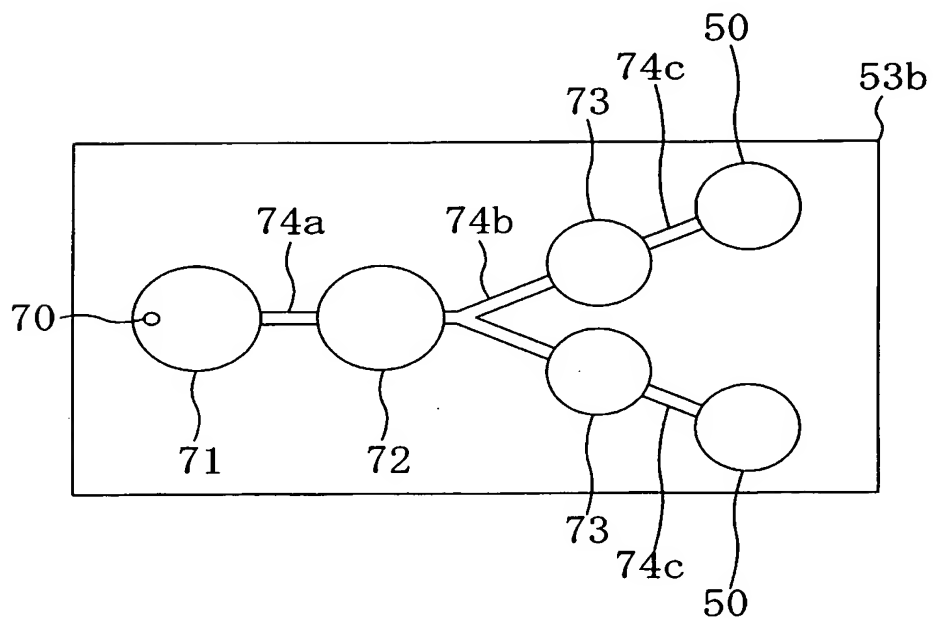


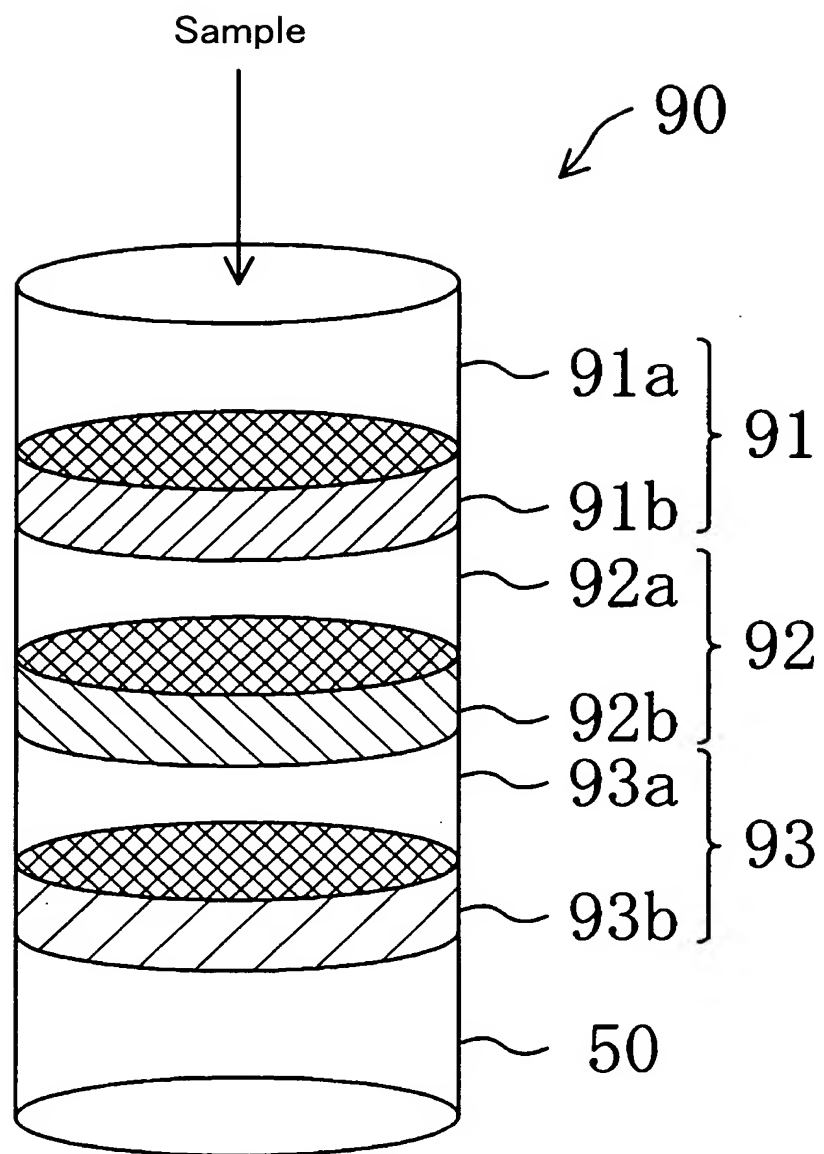
Fig. 6



**Fig. 7**

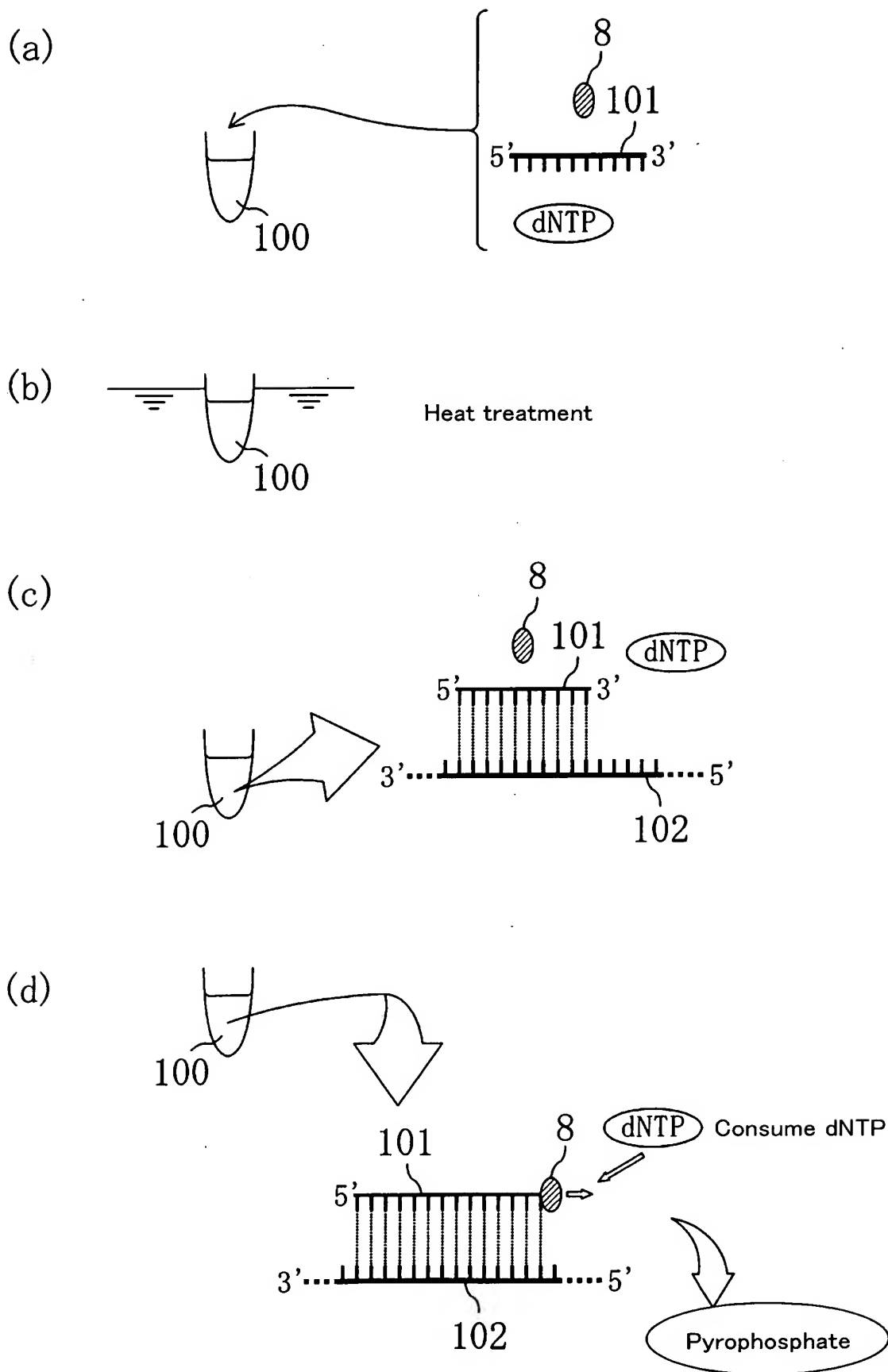


**Fig. 8**

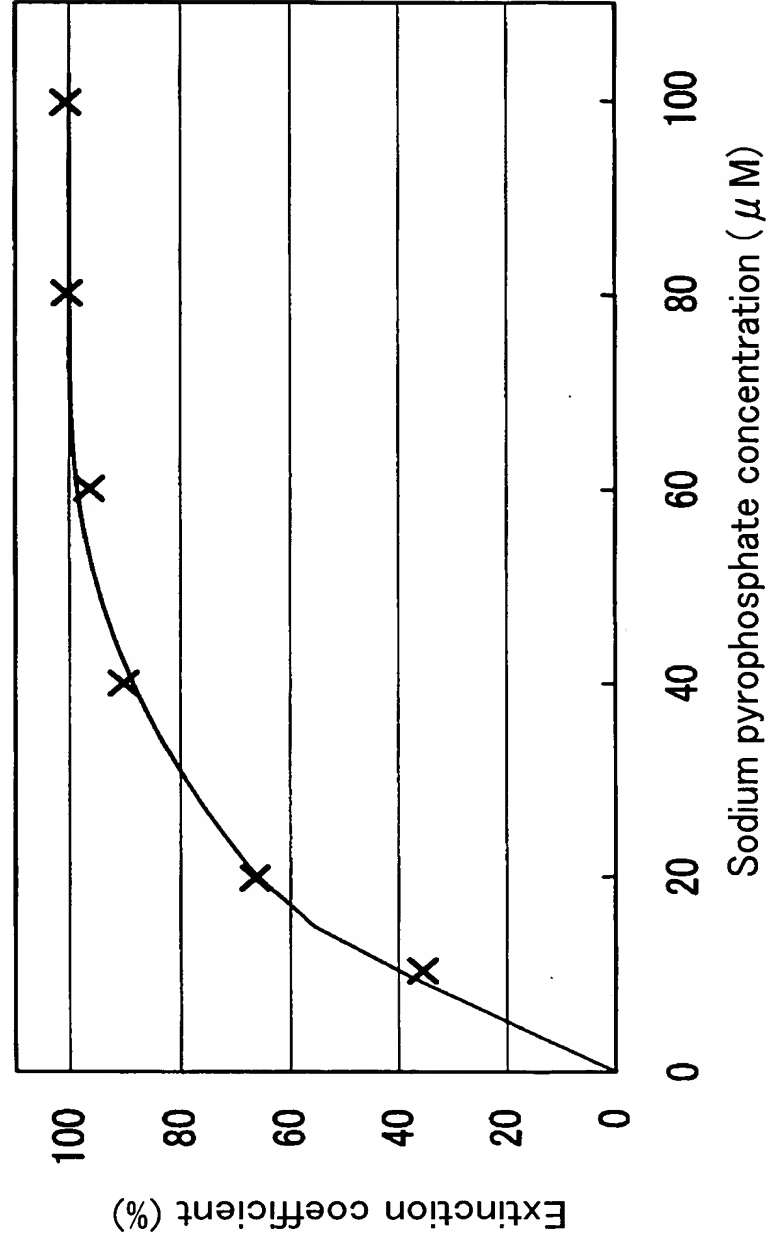


**Fig. 9**

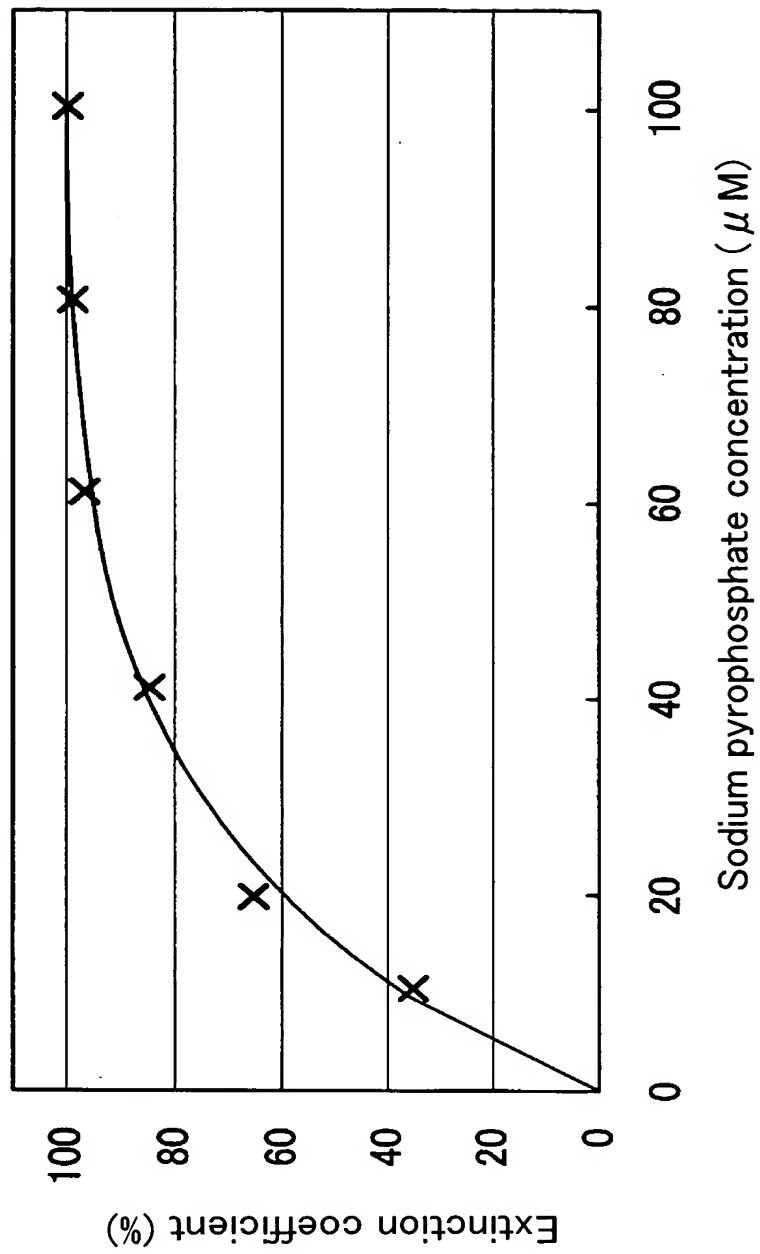




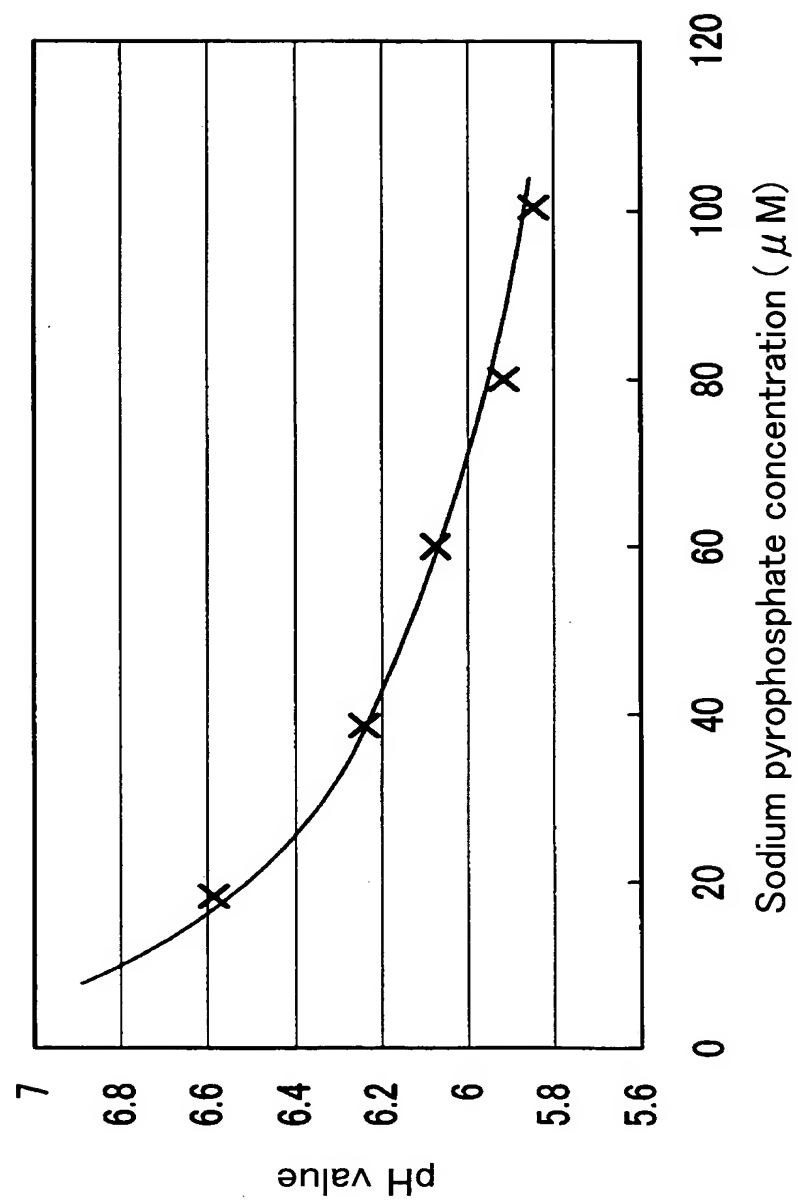
**Fig. 10**



**Fig. 11**



**Fig. 12**



**Fig. 13**

(a) Primer C

5' GATGAGTTTCGTGTCCGTACA ACTGG 3'

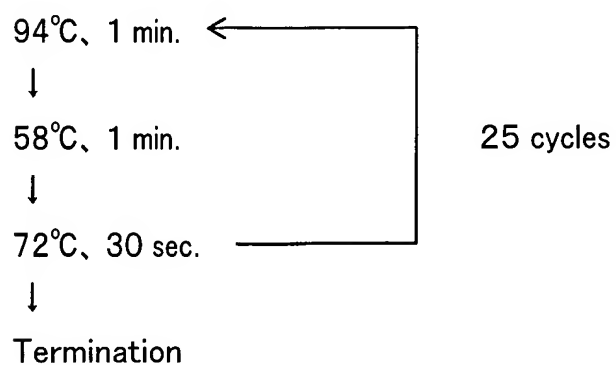
Primer D

5' GAATCACGGTATCCGGCTGCGCTGA 3'

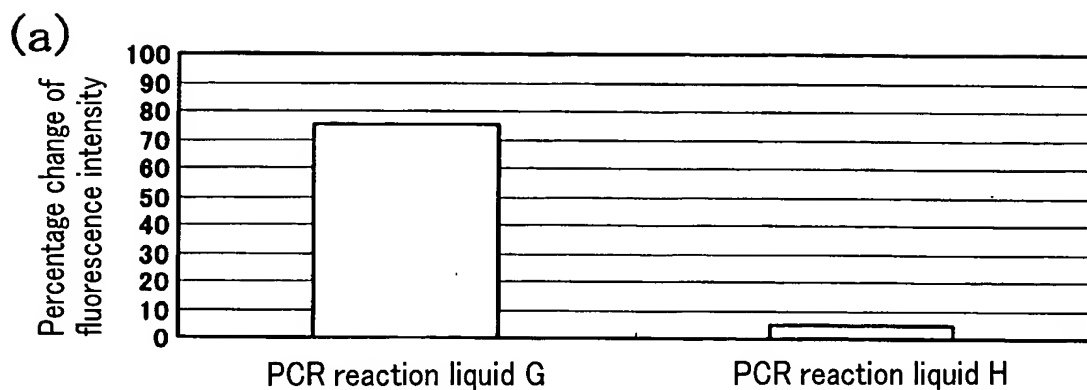
(b)

	PCR reaction liquid G	PCR reaction liquid H
T a K a R a L a T a q	0. 2 $\mu$ L	0. 2 $\mu$ L
2 $\times$ G C b u f f e r I	1 0 $\mu$ L	1 0 $\mu$ L
d N T P m i x t u r e	3. 2 $\mu$ L	3. 2 $\mu$ L
Sample liquid A or B	4 $\mu$ L (Sample liquid A)	4 $\mu$ L (Sample liquid B)
Primer solution E	0. 9 $\mu$ L	0. 9 $\mu$ L
Primer solution F	0. 9 $\mu$ L	0. 9 $\mu$ L
Distilled water	0. 8 $\mu$ L	0. 8 $\mu$ L

(c)



**Fig. 14**



(b)

$$\text{Percentage change of fluorescence intensity} = \frac{\text{Difference of the values of fluorescence intensity of the PCR reaction liquids before and after adding H}^+\text{-pyrophosphatase}}{\text{The value of fluorescence intensity of the PCR reaction liquid before adding H}^+\text{-pyrophosphatase}} \times 100$$

**Fig. 15**

(a)

• Wild type  $\lambda$  DNA

5' GATGAGTTCGTGTCCGTACAAC**TG** 3'  $R_1$   
3' CTACTCAAGCACAGGCATGTTG**AC** 5'  $R_2$

• Mutant  $\lambda$  DNA

5' GATGAGTTCGTGTCCGTACAAC**TA** 3'  
3' CTACTCAAGCACAGGCATGTTG**AT** 5'

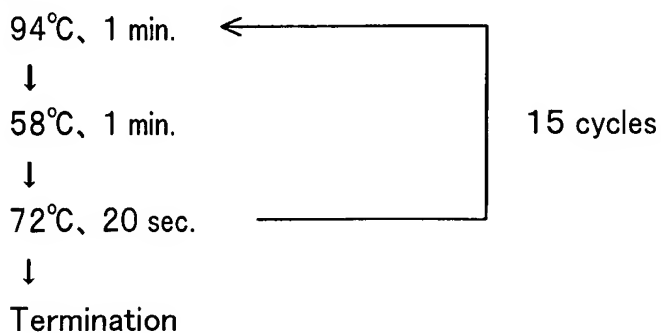
• Typing primer

5' GATGAGTTCGTGTCCGTACAAC**TG** 3'

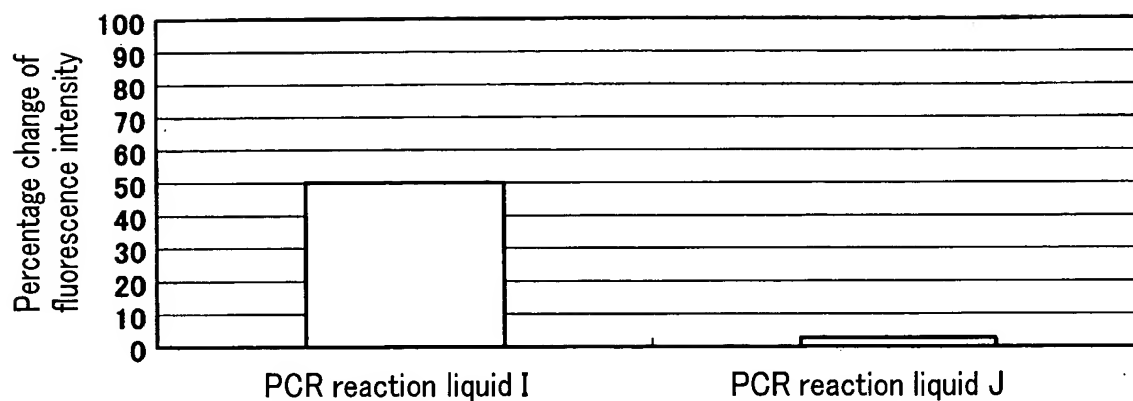
(b)

	PCR reaction liquid I	PCR reaction liquid J
T a K a R a T a q	0. 1 $\mu$ L	0. 1 $\mu$ L
1 0 $\times$ P C R buffer	2 $\mu$ L	2 $\mu$ L
d N T P mixture	1. 6 $\mu$ L	1. 6 $\mu$ L
Wild type $\lambda$ DNA liquid or Mutant $\lambda$ DNA liquid	2 $\mu$ L (Wild type $\lambda$ DNA liquid)	2 $\mu$ L (Mutant $\lambda$ DNA liquid)
Typing primer solution	0. 9 $\mu$ L	0. 9 $\mu$ L
Primer solution F	0. 9 $\mu$ L	0. 9 $\mu$ L
Distilled water	1 2. 5 $\mu$ L	1 2. 5 $\mu$ L

(c)



**Fig. 16**



**Fig. 17**

(a)

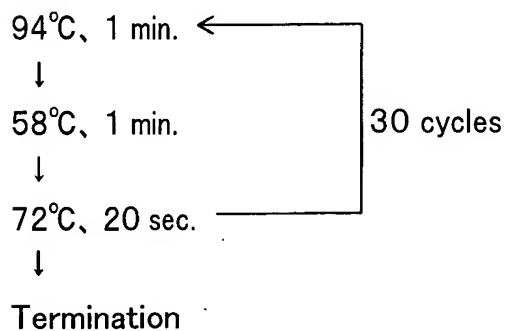
• Primer 3

5' GATGAGTTCGTGTCCGTACAACT 3'

(b)

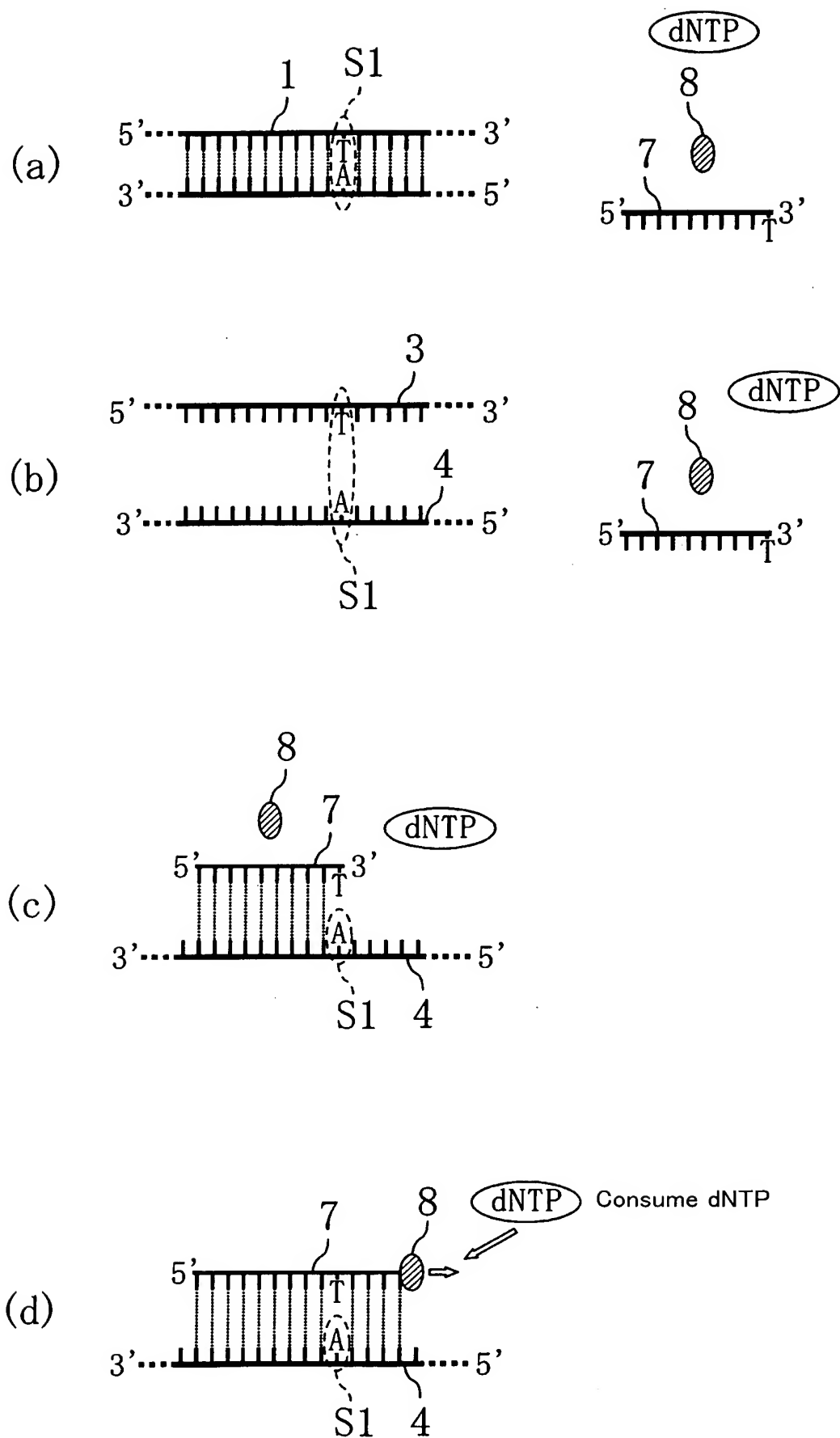
	Extension reaction liquid K	Extension reaction liquid L
T a K a R a T a q	0. 1 $\mu$ L	0. 1 $\mu$ L
10 $\times$ PCR buffer	2 $\mu$ L	2 $\mu$ L
dATP solution	1. 6 $\mu$ L	1. 6 $\mu$ L
Wild type $\lambda$ DNA liquid or Mutant $\lambda$ DNA liquid	8 $\mu$ L (Wild type $\lambda$ DNA liquid)	8 $\mu$ L (Mutant $\lambda$ DNA liquid)
Primer solution M	0. 9 $\mu$ L	0. 9 $\mu$ L
Distilled water	12. 5 $\mu$ L	12. 5 $\mu$ L

(c)

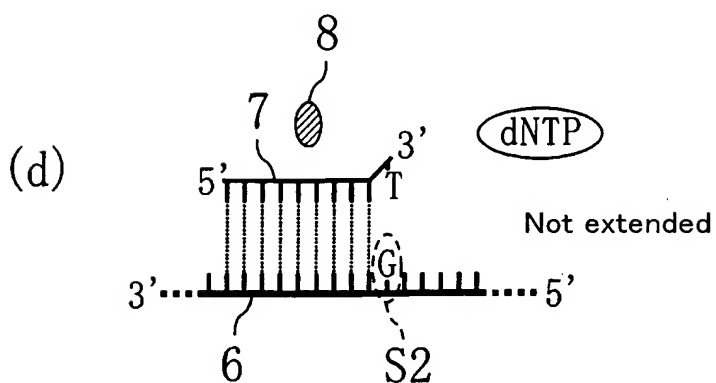
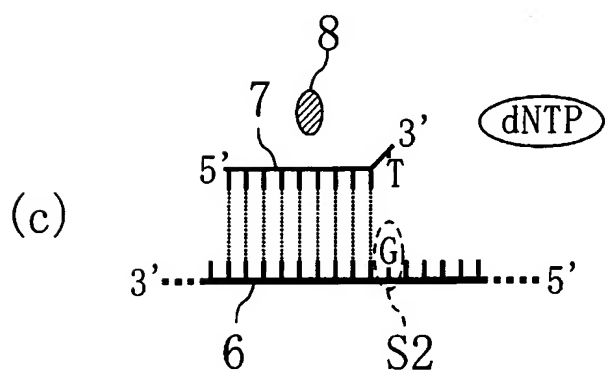
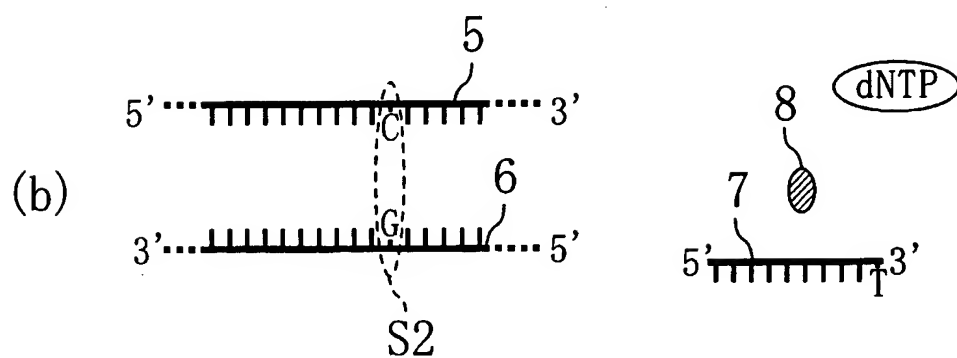
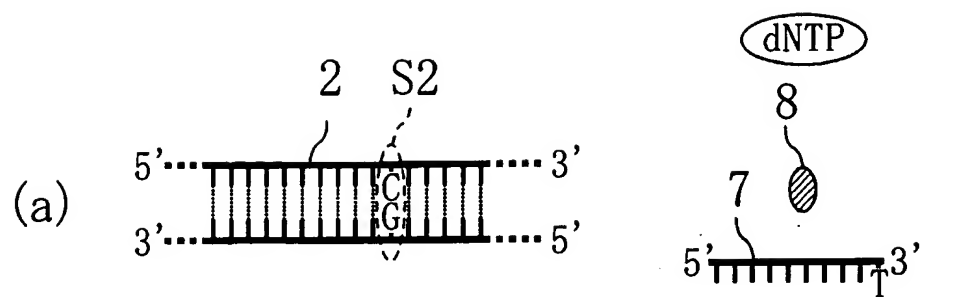


**Fig. 18**



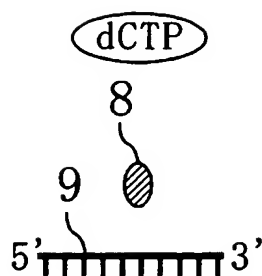
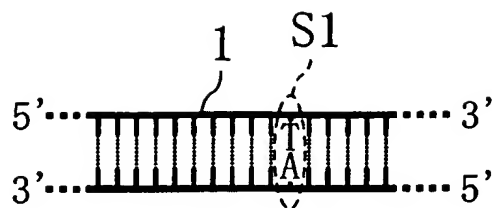


**Fig. 19 PRIOR ART**

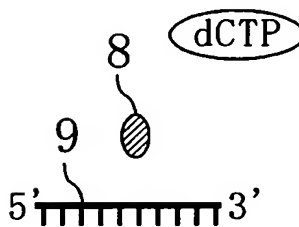
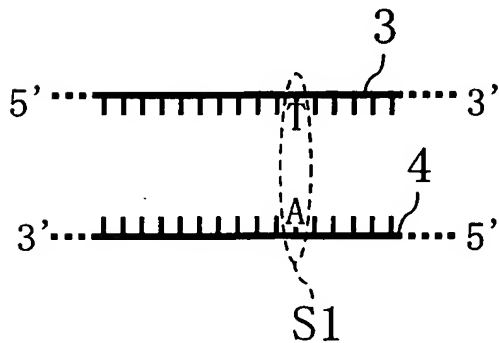


**Fig. 20 PRIOR ART**

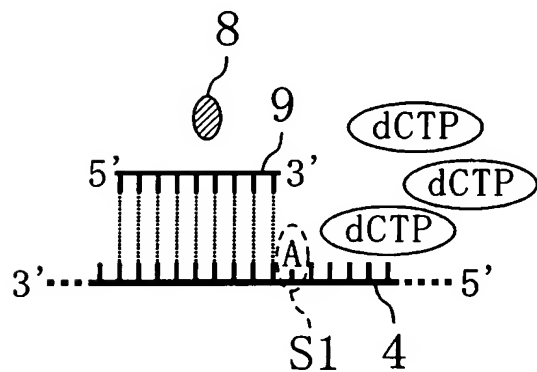
(a)



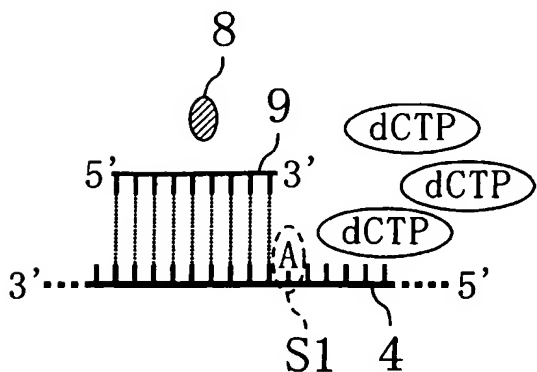
(b)



(c)

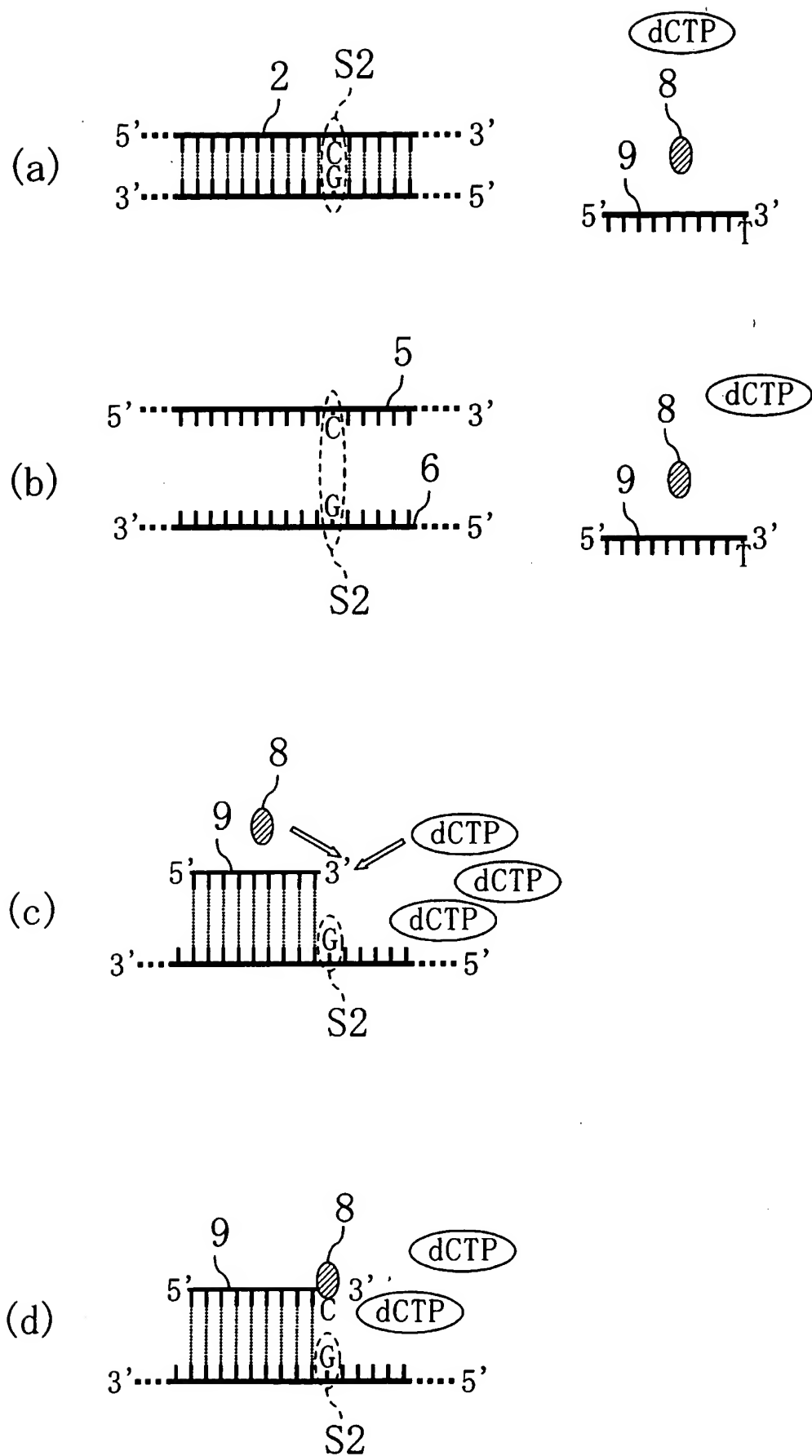


(d)



Not extended

**Fig. 21 PRIOR ART**



**Fig. 22 PRIOR ART**